

PATENT

Serial No. 10/538,203

Amendment in Reply to Final Office Action of July 29, 2008  
and Advisory Office Action of October 7, 2008

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) An illumination system, comprising a radiation source and a fluorescent material comprising at least one phosphor capable of absorbing a part of light emitted by the radiation source and emitting visible light of wavelength different from that of the absorbed light; wherein said at least one phosphor is an oxido-nitrido-silicate of general formula

$EA_{2-z}Si_{5-a}B_aN_{8-a}O_a:Ln_z$ , wherein  $0 < z \leq 1$  and  $0 < a < 5$ , comprising at least one element EA selected from the group consisting of Mg, Ca, Ba and Zn and at least one element B selected from the group consisting of Ga and In, and being activated by a lanthanide selected from the group consisting of cerium, europium, terbium, praseodymium and mixtures thereof.

PATENT

Serial No. 10/538,203

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and Advisory Office Action of October 7, 2008

2. (Previously Presented) The illumination system according to claim 1,

wherein the fluorescent material comprises a red phosphor having a general formula of  $EA_{2-z}Si_{5-a}B_aN_{a-z}O_a:Ln_z$ , wherein  $0 < z \leq 1$  and  $0 < a < 5$  and a green or yellow phosphor.

3. (Previously Presented) The illumination system according to claim 1,

wherein a green or yellow phosphor is selected from the group of

$MS:Eu,Ce,Cu$  comprising at least one element selected from the group  $M = Mg, Ca, Sr, and Zn$ ;

$MN_2S_4:Eu,Ce$  comprising of at least one element selected from the group  $M = Mg, Ca, Sr, and Zn$  at least one element selected from the group  $N = Al, Ga, In, Y, La, Gd$ ,

$(Re_{1-r}Sm_r)_3(Al_{1-s}Gas)_5O_{12}:Ce$ , where  $0 \leq r < 1$  and  $0 \leq s \leq 1$  and  $Re$  selected from  $Y, Lu, Sc, La$  and  $Gd$

and  $(Ba_{1-x-y-z}Sr_xCa_y)_2SiO_4:Eu_z$ , wherein  $0 \leq x \leq 1$ ,  $0 \leq y \leq 1$  and

PATENT

Serial No. 10/538,203

Amendment in Reply to Final Office Action of July 29, 2008  
and Advisory Office Action of October 7, 2008

0<z<1.

Claim 4 (Canceled)

5. (Previously Presented) The illumination system according to  
claim 1,

wherein said radiation source comprises a nitride  
compound semiconductor represented by the general formula  
 $\text{In}_i\text{Ga}_j\text{Al}_k\text{N}$ , where  $0 \leq i \leq 1$ ,  $0 \leq j \leq 1$ ,  $0 \leq k \leq 1$  and  $i+j+k=1$ .

Claim 6 (Canceled)

7. (Previously Presented) The illumination system according to  
claim 1,

wherein the system is a traffic sign.

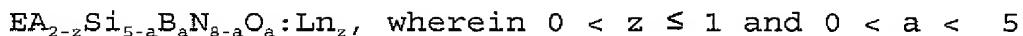
8. (Previously Presented) A phosphor capable of absorbing a  
part of light emitted by the radiation source and emitting visible  
light of wavelength different from that of the absorbed light;

PATENT

Serial No. 10/538,203

Amendment in Reply to Final Office Action of July 29, 2008  
and Advisory Office Action of October 7, 2008

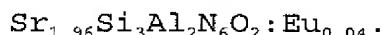
wherein said at least one phosphor is an oxido-nitrido-silicate of general formula



comprising at least one element EA selected from the group consisting of Mg, Ca, Ba and Zn and at least one element B selected from the group consisting of Ga and In, and being activated with a lanthanide selected from the group consisting of cerium, europium, terbium and mixtures thereof.

Claims 9-10 (Canceled)

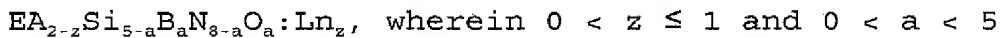
11. (Previously Presented) A phosphor capable of absorbing a part of light emitted by the radiation source and emitting light of wavelength different from that of the absorbed light; wherein said at least one phosphor is of general formula



12. (Previously Presented) The phosphor according to claim 8,

wherein silicon is substituted by germanium.

13. (Previously Presented) An illumination system comprising a radiation source and a fluorescent material comprising at least one phosphor capable of absorbing a part of light emitted by the radiation source and emitting visible light of wavelength different from that of the absorbed light; wherein said at least one phosphor is an oxido-nitrido-silicate of general formula



comprising at least one element EA selected from a group of Mg and Zn and at least one element B selected from a group of Ga and In, and being activated by a lanthanide selected from a group of cerium, terbium, praseodymium and mixtures thereof.

Claim 14 (Canceled)

15. (Previously Presented) The illumination system of claim 13, wherein the fluorescent material comprises a red phosphor having a general formula of  $\text{EA}_{2-z}\text{Si}_{5-a}\text{B}_a\text{N}_{8-a}\text{O}_a:\text{Ln}_z$ , wherein  $0 < z \leq 1$  and  $0 < a < 5$  and a green or yellow phosphor.

PATENT

Serial No. 10/538,203

Amendment in Reply to Final Office Action of July 29, 2008  
and Advisory Office Action of October 7, 2008

16. (Previously Presented) The illumination system of claim 15, wherein the green or yellow phosphor is selected from the group of

MS:Eu,Ce,Cu comprising at least one element selected from a group M = Mg, Ca, Sr, and Zn;

MN<sub>2</sub>S<sub>4</sub>:Eu,Ce comprising of at least one element selected from a group M = Mg, Ca, Sr, and Zn at least one element selected from a group N = Al, Ga, In, Y, La, Gd,

(Re<sub>1-r</sub>Sm<sub>r</sub>)<sub>3</sub>(Al<sub>1-s</sub>Gas)<sub>5</sub>O<sub>12</sub>:Ce, where 0 ≤ r < 1 and 0 ≤ s ≤ 1 and Re selected from Y, Lu, Sc, La and Gd,

and (Ba<sub>1-x-y-z</sub>Sr<sub>x</sub>Ca<sub>y</sub>)<sub>2</sub>SiO<sub>4</sub>:Eu<sub>z</sub>, wherein 0≤x≤1, 0≤y≤1 and 0<z<1.

17. (Previously Presented) The illumination system of claim 13, wherein the radiation source comprises a nitride compound semiconductor represented by the general formula In<sub>i</sub>Ga<sub>j</sub>Al<sub>k</sub>N, where 0≤i≤1, 0≤j≤1, 0≤k≤1 and i+j+k=1.

PATENT

Serial No. 10/538,203

Amendment in Reply to Final Office Action of July 29, 2008  
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18. (Previously Presented) The illumination system of claim  
13, wherein the system is a traffic sign.